1a) One of the main barriers to using patents is the nature of patent documents. I speak as an academic and consultant forensic engineer, who has acted as an expert witness in numerous patent actions, some of which have gone to full trial. Patents are not written as clearly as needed for effective communication to others skilled in the particular art. I have spent considerable time during my court work in dissecting and analysing many mechanical patents, many of which are written with a lack of clarity. The inventive step is often obscured by inclusion of irrelevant detail, typified by the diagrams of the specific embodiment. They include reference to many numbered parts, only a few of which are actually part of the technical effect. The language used in the description is often arcane and not designed to describe the inventive step clearly and unambiguously, while the claims are frequently couched in overly complex terms. These problems represent a substantial barrier to understanding a patent, especially for small companies who might want either to exploit a new invention, or to patent a new idea of their own. There is a parallel problem in teaching science and engineering undergraduates, where a substantial part of time is needed to overcome the problems of presentation of patent documents. IP generally should form an important part of a science/engineering curriculum, but the subject is rarely included in many undergraduate or even post-graduate courses. I have developed one such module for my own students based on my personal experience, and it has been well received by them, but there is a great need for a national approach to the subject, so that all graduates will enter work with a deeper appreciation of the importance of patent protection of new inventions (as well as other forms of IP protection). The relevant funding councils could be involved.

Patent documents could be improved in several ways:
1. The claims should be written more clearly, especially by dividing long sentences into itemised sub-clauses, each of which an essential part of the invention.
2. The description should be written in plain English, with greater emphasis on the technical effect claimed by the patentee.
3. Diagrams of the specific embodiment should be simplified by either excluding irrelevant detail, or by emboldening the numbers referring to the critical parts which create the technical effect claimed by the patentee.
4. The length of patent documents should be limited, demanding that the technical effect be described concisely and clearly in plain English.

These measures would help improve accessibility to the system, already much improved by the availability of patents on-line via the Espace and US patent Office databases. Access to the older patents however, should be speeded up to reduce the problem of anticipation. I think greater effort should be given to providing SME's with greater help in patenting or protecting innovation in other ways. One way might be to introduce a low cost utility patent, rather than relying on the concept of design right, which appears to exist only in the UK. SME's should be made more aware of the importance of keeping dated and witnessed records of their design work, especially in view of the difference between the US Patent system and the rest of the world (first to invent, rather than first to file, wins the race in the USA). There still appear to be examples of devices developed by SME's which when shown to larger companies, are then patented and the SME loses all rights. Many SME's still do not seem to be aware of the importance of secrecy in the early stages of development of a new design, and of filing at least a provisional patent which should provide a degree of protection for their rights. I think special efforts should be made to provide short courses targeted specifically at SME's and their employees to improve their awareness of the importance of IP protection, but also to make them aware of the utility of the system (and so prevent duplication of effort for devices which have already been invented). Perhaps extra tax incentives, and a reduced fees system might be appropriate for SME's.

2/4. I have been involved in actions involving patents which, on close examination, prove to be non-inventive. It appears that some large companies patent the slightest improvement to one of their products without appreciating that the inventive step is invalid for being already known in the prior art. When subjected to forensic scrutiny however, it becomes rapidly apparent that such patents are very obvious and must be invalid. Ways of improving patent examination should be investigated, including perhaps, reference to external referees to evaluate the technical effect. The patent system is in effect being used by some companies to erect barriers around their original innovations to exclude competitors, and so extend the monopoly beyond reasonable limits. And it is only larger companies who can afford to challenge such patents by court action, while SME's are excluded for the considerable costs involved. The Patents County Court has in my experience been successful in this area, but patent litigation is still very expensive for the small inventor or the SME. Validity lies at the heart of patenting, but is often obscured by poorly drafted patent documents which have not been effectively examined originally by the Patent office involved.

**Specific Issues: Copyright exceptions/Digital Rights Management**

As an author of several books and papers in learned journals, I think that the current system of exceptions works effectively. The internet is transforming the dissemination of useful knowledge in a way that the originators cannot have foreseen. It enables academics to publicise issues which would have been inconceivable a few years ago, especially in topics such as safety engineering. I believe that the public domain should be recognised officially and encouraged, especially for its educational benefits. The Gutenburg project and Wikipedia are just two examples of the way the public domain is being developed for the public good. There are many anomalies though, especially between the USA and the UK. For example, I can use any material produced by the US government without fear of copyright infringement owing to their enlightened system. This is especially important for the many safety investigations produced by various state and federal organisations. The position in the UK is more restrictive, and it would help if the UK adopted US practice.

There is evidence however that some UK bodies are abusing the copyright system. For example, old photographs which were published when made, and which are well out of copyright, are claimed to be copyright of the organisations and institutes which own the originals. They claim that if they own the original negatives, they own new copyright on positive prints produced by those negative plates. This surely cannot be right because there is no originality in simply printing up an exact copy of the original artwork. Some institutes have set up very large databases of engravings and photographs which are themselves out of copyright, but which the institutes claim new copyright for being a scan or digitised version. The problem was highlighted by a case in the USA recently (Bridgewater Art-v-Corel Inc, New York 1999) where the court found that photographs of old art works (so-called slavish images) could not be copyright, basing its judgment largely on UK law since the photographs in question were made in the UK. The court held that there can be no originality in a slavish image, and therefore no copyright. The situation in the UK is however, still unclear because the issue has not arisen in the UK courts. It would be helpful if this anomaly could be clarified in the UK, because when approached, such organisations give different responses. Some claim new copyright on digitised images or copies, others don't, but instead claim a "reproduction right" and demand a licence fee for what effectively has been in the public domain for a long time. Others claim a database right to the images in question, again an attitude which seems to violate the basic principles of copyright. Bringing public domain images back into copyright is effectively re-introducing a system of everlasting or perpetual copyright which was, I understand, declared unlawful in the Victorian period. Such a confused situation is acting as a serious impediment to scholars and students of art and history.

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